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ATTORNEY'S DOCKET NUMBER

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**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. § 371**

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/831041  
Not yet Assigned

INTERNATIONAL APPLICATION NO.

PCT/DE99/03540

INTERNATIONAL FILING DATE

4 November 1999

PRIORITY DATE CLAIMED

4 November 1998

TITLE OF INVENTION

LINE COUPLING AND USE OF A LINE COUPLING IN A BUS SYSTEM

APPLICANT(S) FOR DO/EO/US

Marten SWART

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application under PCT Article 19 (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
  - a. ☒ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☒ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11. to 16. below concern document(s) or information included:**

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☐ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1 821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information: 1. International Search Report 2. IPER 3. Return receipt postcard.

**CERTIFICATE OF HAND DELIVERY**

I hereby certify that this correspondence is being hand filed with the United States Patent and Trademark Office in Washington, D.C. on May 4, 2001.

LaVerne Whetstone

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) Not yet Assigned <div style="font-size: 2em; font-weight: bold; margin-left: 100px;">09/831041</div>		INTERNATIONAL APPLICATION NO. PCT/DE99/03540		ATTORNEY'S DOCKET NUMBER 449122003800	
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21. <input checked="" type="checkbox"/> The following fees are submitted: <b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.....\$1,000.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$860.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$710.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provision of PCT Article 33(1)-(4) .....\$690.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) .....\$100.00				<b>CALCULATIONS</b> PTO USE ONLY	
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				\$860.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$0	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$0	
Total claims	14 - 20 =	0	x \$18.00	\$0	
Independent claims	1 - 3 =	0	x \$80.00	\$0	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$0	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$860.00	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$0	
<b>SUBTOTAL =</b>				\$860.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				+	\$0
<b>TOTAL NATIONAL FEE =</b>				\$860.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				+	\$40.00
<b>TOTAL FEES ENCLOSED =</b>				\$900.00	
				Amount	\$
				to be	
				refunded:	
				charged:	\$

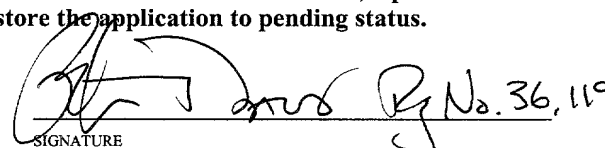
a. ☒ A check in the amount of \$ 900.00 to cover the above fees is enclosed.

b. ☒ The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment to  
Deposit Account No. 03-1952. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive  
 (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

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 for Kevin R. Spivak  
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JC18 Rec'd PCT/PTO 0 4 MAY 2001

GR 98 P 4703

Description

Line coupling and use of a line coupling in a bus system

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The invention relates to a line coupling and to the use of a line coupling in a bus system.

10 A bus system is known in which individual stations are connected to one another by means of a data bus. The stations interchange data with one another via the data line. The data can be transmitted synchronously or asynchronously, with a multiplex method usually being used. In this context, access to the data bus can be designed to be arbitrary or to  
15 follow particular rules. To this end, the individual stations may have equal authorization to send or receive data. Alternatively, one of the stations may be in the form of a master station which controls the other slave stations and, in particular, their access  
20 to the data bus.

The data bus is usually a two-wire line to which the individual stations are linked by means of feeder lines or other connecting lines. Data and/or supply power for one or more stations can be  
25 transmitted via the data bus.

If the bus system is exposed to a rough environment and is operated in a motor vehicle, for example, the risk of a short circuit on the data bus is high. However, if the data bus is shorted at any point,  
30 further data interchange is no longer possible on the entire data bus.

It has therefore been proposed that, in particular, sections of a bus system which are at risk of being shorted be decoupled from the rest of the bus  
35 system in the event of a short circuit on the section,

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so that the operation of the rest of the bus system is not impaired. To this end, PCT resistors or fuses have been used, for example, at coupling points which connect a section of the bus system which is at risk of being shorted, or another section, to the rest of the bus system, said PCT resistors or fuses adopting a high impedance in the event of a large flow of current caused by a short circuit, and hence in the event of great evolution of heat, and thus isolating the shorted bus section from the rest of the bus system. This means that operation is assured on the rest of the bus system. Such coupling to connect two lines for power and/or data transmission, preferably within a bus system, is called a line coupling below. The line coupling links an input line to an output line.

A disadvantage of a line coupling using PCT resistors is that, although the individual bus sections are connected to one another via the PCT resistors with low impedance, they are nevertheless connected using a finite resistance, and hence the number of stations which can be connected to the data line is limited on account of the voltage drop across the PCT resistors.

It is an object of the invention to provide a line coupling in which an output line is coupled to an input line such that the output line is connected to the input line with low impedance only if the output line is not shorted.

The object is achieved by the features of patent claim 1.

In this case, a large isolation resistor, preferably having a resistance value in the kilohm range, is arranged between the input line and the output line.

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Arranged in parallel with the isolation resistor is a controllable switch which can be turned on and off and is preferably in the form of a transistor switch. If the controllable switch is off, as when the input line and the output line are first connected electrically and mechanically, then the input line is connected to the output line only via the large isolation resistor. In the event of a short circuit on the output line, the isolation resistor certainly prevents the short circuit from perturbing the input line and continues to allow operation between stations connected to the input line. However, when the output line is not shorted, data transmission between the input line and the output line is not possible. The input line and the output line serve as transmission medium for data and/or power.

The output line is now provided with a voltage tap which allows the output voltage between the output line and a stipulated reference-ground potential to be measured in the case of a one-wire line, or allows the voltage to be measured between the wires of a two-wire output line. A control circuit controls the switch on the basis of the ascertained output voltage. In this case, the switch is preferably turned on only when the output voltage ascertained above exceeds a limit value.

If the (slave) station connected to the output line has a dedicated voltage supply, the input voltage can still be applied to the output line. If this slave station is supplied with power via the station connected to the input line, the input line and the isolation resistor are used to supply a supply voltage to the output line, and hence to the slave station, which additionally has a sufficiently high level on the supply

line for detection by the control circuit. In this context, the supply voltage may be in the form of a DC voltage signal having a superimposed AC signal which contains information. Alternatively, the supply voltage  
5 may be provided by an AC signal which optionally contains information. If appropriate, such an AC signal is rectified and is smoothed by using a capacitor, for the purpose of tapping off the output voltage. In each case, an output voltage of greater than zero can be  
10 detected on the output line when the output line is not shorted. The controllable switch is then automatically actuated in any case and shorts the isolation resistor.

If, on the other hand, the control circuit detects that the output voltage on the output line is  
15 assuming values of around 0 volts, even though a higher voltage value ought to be expected for correct operation, the measured output voltage does not exceed the limit value associated with it. As a result, the electrically controllable switch remains on. The output  
20 line itself or the bus section connected to the output line is obviously shorted and then remains decoupled from the input line and thus does not impair the data transmission on the input line bus system.

The line coupling according to the invention  
25 works entirely autonomously, since connection of the bus section connected to the output line depends only on the voltage on the actual output line. The line coupling can also be added and built up subsequently in any data lines and bus systems without needing to  
30 modify the data lines or connected stations in any way. Furthermore, the use of only a few components in the line coupling achieves effective short circuit protection for a bus system. Only if there is no short circuit is

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the output line connected. As soon as a short circuit has occurred, the output line is automatically disconnected again. Preferably, the line coupling according to the invention is used upstream of data line sections exposed to an environment which presents a risk of shorting. In a motor vehicle, such a line coupling should, by way of example, be arranged on the vehicle body upstream of the data line's crossing into a vehicle door or into an A/B/ or C pillar of the vehicle, since the data line section for the vehicle door is subjected to a high level of mechanical stress by the vehicle door activity, and the supporting pillars of the vehicle can be subjected to a high level of stress as a result of an accident. In addition, the use of the line coupling in a bus system can achieve controlled connection and disconnection of bus stages and also simplified addressing of connected stations, as described later.

In one advantageous development of the invention, the control circuit contains an evaluator for a control word supplied via the input line. The control circuit is then designed such that the switch is operated only when a minimum output voltage is measured and, at the same time, a control word for turning on the switch can be tapped off from the input line and detected. Preferably, a line coupling of such design is used in a bus system in which interconnected stations are connected to one another by means of a respective line coupling. Starting from a master station, to which the rest of the slave stations are connected in a chain or in a ring, each slave station is started up such that the line coupling which is arranged directly upstream of the slave station (in the direction of the master station) is connected first and then the slave station is allocated an address. The method starts with the first slave station connected to the master station by means of a line coupling. Thus, each

nonshorted bus stage can be started up in succession and, as a result of the sequential procedure, each slave station can also be uniquely allocated an address by the master station.

5           When an output line has been successfully connected to an input line of the line coupling, the output line remains connected to the input line with low impedance via the switch, even if the control word is no longer present, unless the output voltage falls  
10 short of the prescribed limit value.

          If a control word has been provided for turning off the switch, then the bus system can also be disconnected by means of control. Such a control word needs to be detected by the line coupling and  
15 converted. If a plurality of line couplings are used, a dedicated control word for turning off the switch is then provided for each line coupling.

          In the present application, the station appointed as master station has at least a controlling  
20 effect on the slave stations within the context of initializing the bus system and possibly the slave stations.

          In another advantageous development of the invention, the line coupling is of symmetrical design,  
25 and its input side also has a tap for the input voltage between the input line [lacuna]. In addition, the output side is provided with a control word evaluator which evaluates control words supplied via the output line and takes appropriate control measures.  
30 Preferably, the controllable switch is turned on when a minimum output voltage, a minimum input voltage and, at the same time, a control word for turning on the switch are all detected either at the output or at the input.  
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inclusion of the input control voltage has the advantage that the line coupling can be used in a closed ring system, and hence stages of the data bus can also be disconnected. The addition of the control word evaluator on the output side has the advantage that there is now a symmetrical line coupling which can be arranged independently of direction between an input line and an output line. If, in addition, this data line coupling is used in a ring bus system, the line coupling can be activated both from the input side and from the output side. In a ring bus system in which a line coupling is arranged between each two stations and in which one of the stations performs the function of a master station, the slave stations can be activated from the master station in one direction in the ring. If a short circuit is detected on a subsection, the master station can activate the rest of the slave stations in the other direction in the ring and can thus operate a maximum number of slave stations on the ring bus, the line couplings which are connected to one another by means of the shorted bus section remaining deactivated, and hence excluding the intermediate slave station from data transmission operation. The advantages of such a bus system in terms of initialization and disconnection can be taken from the preceding development.

In another advantageous development of the invention, in contrast with the last development described, the evaluators for control words are omitted both on the input side and on the output side. For operation which is independent of direction, it is also advantageous with this line coupling if the switches are enabled only when both the input voltage and the output voltage exceed limit values.

The part of the inventive object concerning the use is achieved by the features of patent claim 9.

Other advantageous developments of the invention can be found in the dependent claims.

5 Exemplary embodiments of the invention and developments thereof are explained in more detail with the aid of the drawing, in which:

Figure 1 shows the electrical circuit diagram for a line coupling according to the invention,

10 Figure 2 shows a first bus system using a line coupling, and

Figure 3 shows a further bus system using a line coupling.

Figure 1 shows the electrical circuit diagram  
15 for a line coupling according to the invention. A two-wire input line E is connected to a two-wire output line A by means of an isolation resistor 21 in each line path. Arranged in parallel with each isolation resistor 21 is a respective electrically controllable  
20 switch 22. Each electrically controllable switch contains two field-effect transistors M1 and M2, and M3 and M4, in series and also a respective resistor R3 and R4. A control circuit 23 is used to operate the switches 22. The control circuit 22 contains a  
25 comparator 231 for the input voltage, a comparator 232 for the output voltage, an evaluator 233 on the input side, an evaluator 234 on the output side, an AND gate 235, an OR gate 236, a bridge 237, a driver unit 238 and a charge pump 239.

30 The first comparator 231 compares the input voltage  $U_E$ , which is applied between the lines of the input line E and is supplied to the comparator 231 via polarity reversal protection diodes D1

[illegible]

The second comparator 232 compares the output voltage  $U_A$ , which is produced between the lines of the output line A and is supplied to the comparator 232 via polarity reversal protection diodes D7 to D10, with a further limit value and passes a logic one to the AND gate 235 if the further limit value is exceeded.

The evaluator 233 on the input side receives data signals from the input line E and evaluates control words transmitted via the input line E in this manner. If, by way of example, the evaluator 233 detects a control word for turning on the switches 22, it outputs a logic one to the OR gate 236.

15           The evaluator 234 on the output side receives  
data signals from the output line A and evaluates  
further control words transmitted via the output line A  
in this manner. If, by way of example, the evaluator  
234 detects a further control word for turning on the  
20 switches 22, it outputs a logic one to the OR gate 236.

The output of the OR gate 236 is connected to one input of the AND gate 235. When the bridge 237 is open, the driver unit 238 is thus actuated only when a minimum input voltage, a minimum output voltage and, either on the input side or on the output side, a control word for turning on the controllable switches 22 are all detected. Such a line coupling is thus particularly suitable for controlled startup of bus systems, preferably ring bus systems.

30           The charge taken from the input and/or output  
voltage  $U_E$  and  $U_A$  via two diodes D5, D6 is used by the

charge pump 239 and the driver unit 238 to turn on the controllable switches 22. When in the form of FETs, M1 to M4 are turned on for each controllable switch 22, so that the isolation resistors 21 are shorted and the  
5 input line E is connected to the output line A with low impedance in the two line paths.

Figure 2 shows a bus system having a master station 1, n slave stations  $3_1$  to  $3_n$  and n line couplings  $2_1$  to  $2_n$ . In this case, each station 1,  $3_i$  is  
10 connected to a further station 1,  $3_i$  via a line coupling  $2_i$ . In this context, the output line A of one line coupling 2 is the input line E of the next line coupling. Each slave station 3 is connected to an input line E or an output line A by means of a connecting  
15 line V.

The line couplings 2 are designed in accordance with the invention or one of the developments of the invention, preferably with a control word evaluator on the input side.

Starting with the slave station  $3_1$  and the associated line coupling  $2_1$ , all the slave stations 3 are successively linked to the master station. The master station 1 delivers a DC voltage signal to the input line  $E_1$  to supply all the slave stations 3. Data  
20 signals from the master station 1 are additively superimposed on the DC voltage signal as AC signals. Data signals from the slave stations 3 are in the form of current or load signals.

Figure 3 shows a bus system having a master  
30 station 1, n slave stations  $3_{ii}$  and n+1 line couplings  $2_{ii}$ . In this case, each station 1,  $3_{ii}$  is connected to a further station 1,  $3_{ii}$  via a line coupling  $2_{ii}$ . The line coupling corresponds to that in figure 2 except that it is no longer possible to refer specifically to input  
35 and output lines of the line couplings,

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since a bus ring structure relativizes this direction-dependent view.

The line couplings 2 are designed in accordance with the invention or one of the developments of the invention, preferably with a control word evaluator on the input side and on the output side.

Starting with the slave station  $3_{11}$  and the associated line coupling  $2_{11}$ , all the slave stations 3 are successively linked to the master station. If a short circuit is detected on a data line section, the master station 1 attempts to link the rest of the slave stations 3 subsequently, starting with the slave station  $3_{21}$  and the associated line coupling  $2_{21}$ .

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## Patent claims

1. A line coupling in a bus system,  
- having an input line (E) and having an output line  
5 (A), where  
- a master station (1) is connected to the line coupling (2) by means of the input line (E), and a slave station (3) is connected to the line coupling (2) by means of the output line (A),  
10 - having an isolation resistor (21) between the input line (E) and the output line (A),  
- having a controllable switch (22) connected in parallel with the isolation resistor (21), and  
- having a control circuit (23) for controlling the  
15 switch (22) on the basis of an output voltage ( $U_A$ ) on the output line (A).
2. The line coupling as claimed in claim 1, in which an evaluator (233) is provided for evaluating a control word supplied via the input line (E), and in  
20 which the control circuit (23) is designed to control the switch (22) on the basis of the ascertained control word.
3. The line coupling as claimed in claim 1 or claim 2, in which a further voltage tap is provided on  
25 the input line (E), and in which the control circuit (23) is designed to control the switch (22) on the basis of the ascertained input voltage ( $U_E$ ).
4. The line coupling as claimed in one of the preceding claims, in which a further evaluator (234) is  
30 provided for evaluating a further control word supplied via the output line (A), and in which the control circuit (23) is designed to control the switch (22) on the basis of the ascertained further control word.

5. The line coupling as claimed in one of the preceding claims, in which the control circuit (23) is designed such that the switch (22) is turned on when the output voltage ( $U_A$ ) exceeds a limit value.

5 6. The line coupling as claimed in one of claims 2 to 4, in which the control circuit (23) is designed such that the switch (22) is turned on when the output voltage ( $U_A$ ) exceeds a limit value and a prescribed control word is detected.

10 7. The line coupling as claimed in one of claims 3 or 4, in which the control circuit (23) is designed such that the switch (22) is turned on when the output voltage ( $U_A$ ) exceeds a limit value, a prescribed control word is detected and the input voltage ( $U_E$ ) exceeds a further limit value.

15 8. The line coupling as claimed in claim 4, in which the control circuit (23) is designed such that the switch (22) is turned on when the output voltage ( $U_A$ ) exceeds a limit value, a prescribed control word is detected at the input or at the output and the input voltage ( $U_E$ ) exceeds a further limit value.

20 9. The line coupling as claimed in claim 1, where the output line ( $A_i$ ) is the input line ( $E_{i+1}$ ) for a further line coupling ( $2_{i+1}$ ) and where the output line ( $A_{i+1}$ ) of the further line coupling ( $2_{i+1}$ ) is connected to a further slave station ( $3_{i+1}$ ).

25 10. The line coupling as claimed in claim 9, where further line couplings ( $2_i$ ) are connected in series with one another, and

where a respective further slave station (3<sub>i</sub>) is arranged between two data coupling stations.

11. The line coupling as claimed in claim 10, where the output line of the last line coupling is connected  
5 to the master station (1).



Abstract

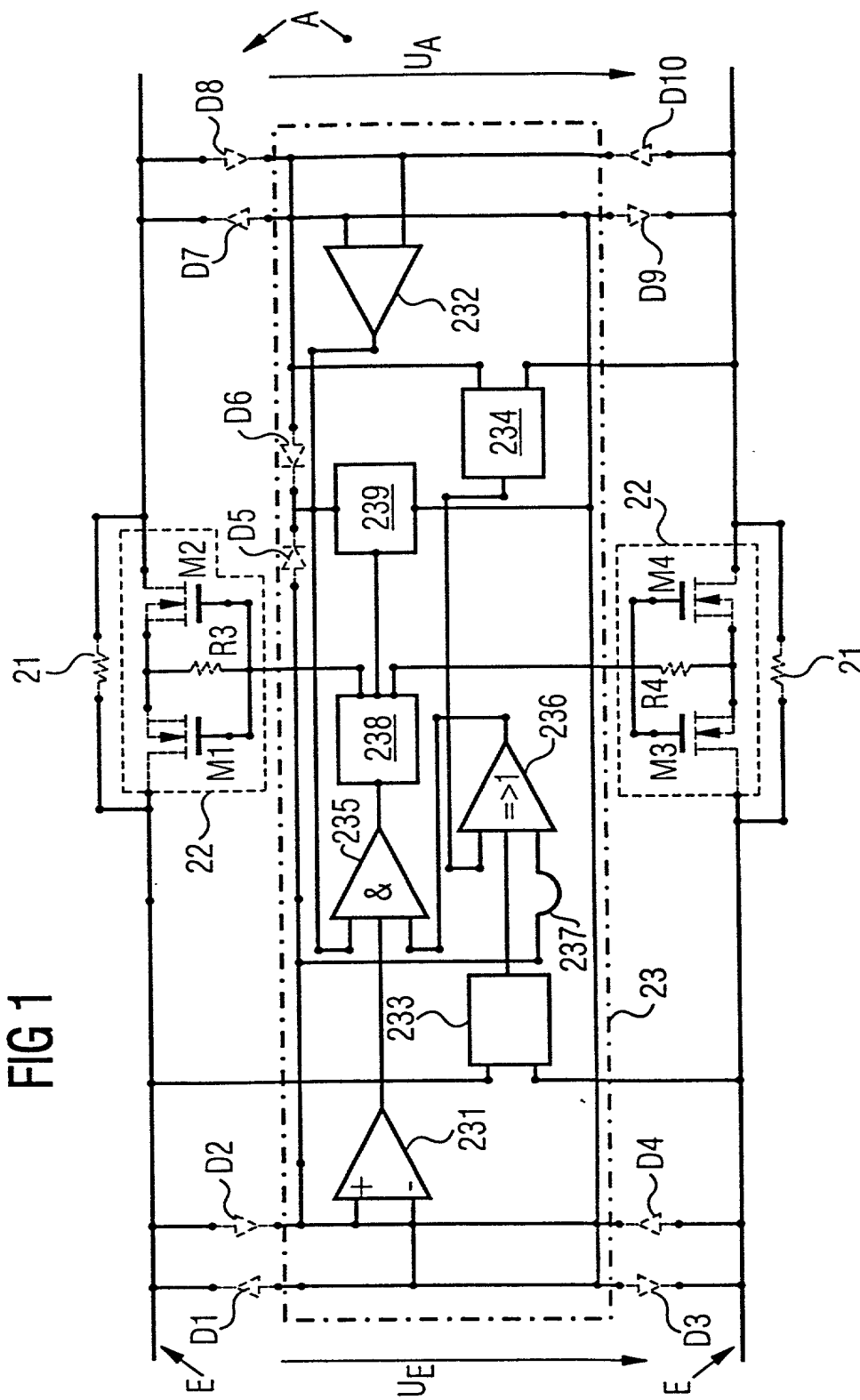
Line coupling and use of a line coupling in a bus system

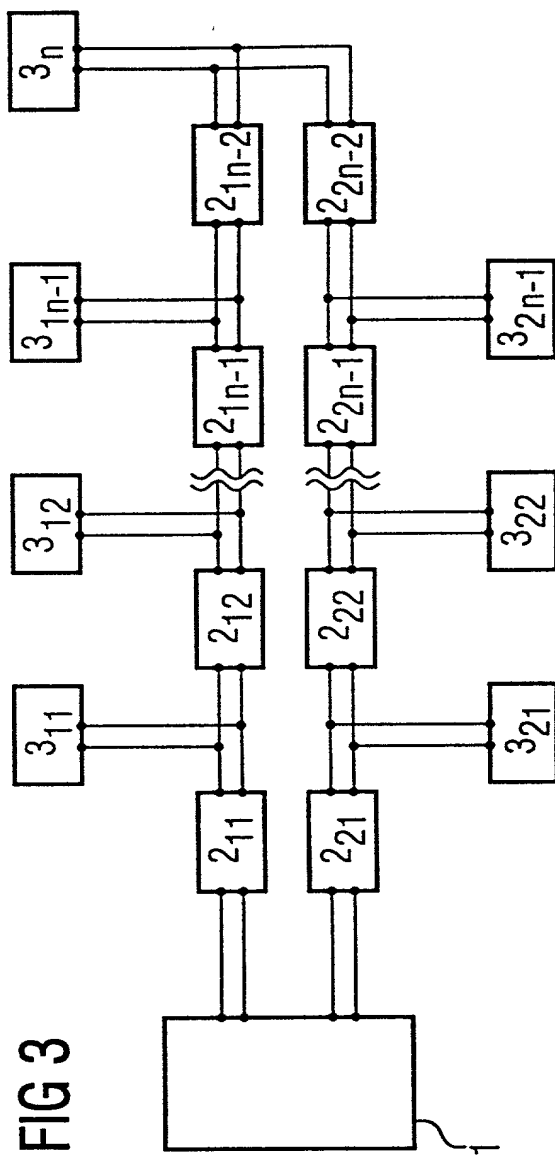
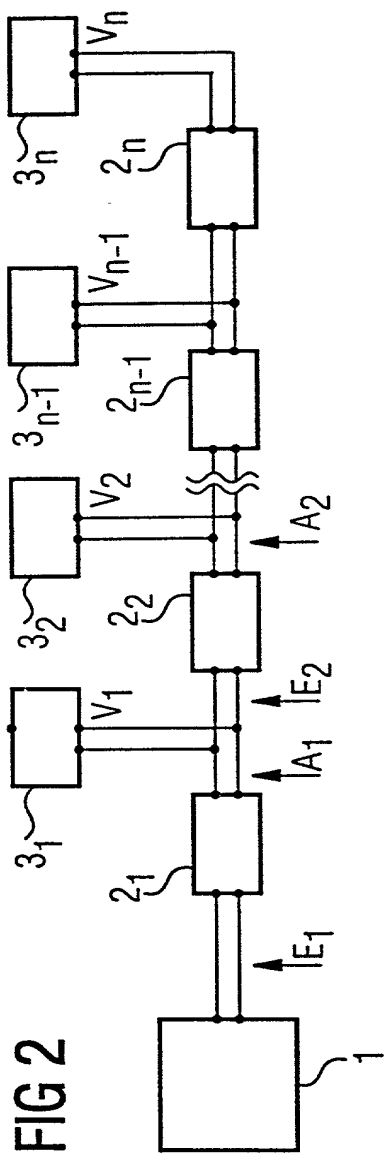
In a line coupling, an input line (E) is connected to an output line (A) via an isolation resistor (21). Arranged in parallel with the isolation resistor (21) is a controllable switch (22). The switch (22) is controlled by a control circuit (23) on the basis of the ascertained output voltage ( $U_A$ ) on the output line (A). In a bus system, such a line coupling (2) is used to connect two stations (1, 3).

Figure 1

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FIG 1





# Declaration and Power of Attorney For Patent Application

## *Erklärung Für Patentanmeldungen Mit Vollmacht*

### German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

Leitungskopplung und Verwendung einer  
Leitungskopplung in einem Bussystem

deren Beschreibung

(zutreffendes ankreuzen)

☐ hier beigelegt ist.

☒ am 04.11.1999 als

PCT internationale Anmeldung:

PCT Anwendungsnummer PCT/DE99/03540

eingereicht wurde und am \_\_\_\_\_

abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

(check one)

☐ is attached hereto.

☐ was filed on \_\_\_\_\_ as

PCT international application

PCT Application No.

and was amended on

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

FOI 050 740 FEB 99

# German Language Declaration

Prior foreign applications  
Priorität beansprucht

Priority Claimed

198 50 869.7

Germany

04.11.1998

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☐

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

Yes  
Ja

No  
Nein

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

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☐

Yes  
Ja

No  
Nein

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

☐

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Yes  
Ja

No  
Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)  
(Anmeldeseriennummer)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig,  
aufgegeben)

(Status)  
(patented, pending,  
abandoned)

(Application Serial No.)  
(Anmeldeseriennummer)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig,  
aufgegeben)

(Status)  
(patented, pending,  
abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## German Language Declaration

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**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint

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(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).

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